CLAIMS

1.   A spectrum spread receiver, which carries out a reverse spreading process on a signal received by a single antenna or a plurality of antennas, and also carries out

5   a data demodulation process based upon the reverse spread signal, characterized by comprising:

        a path detection unit which detects a plurality of multi-path waves from the reverse spread signal, which have satisfied a predetermined standard and for outputting

10   time-sequential positional information of the paths;

        a plurality of beam forming units which forms beams by using an adaptive algorithm based upon the time-sequential positional information that is received on the basis of the path;

15   a plurality of transfer path estimation units which calculate a transfer path estimation value based upon a receiving signal obtained on the basis of a beam, and carry out a weighting process in accordance with the signal amplitude and a removing process on the phase variation,

20   based upon the results of the estimation;

        an interference amount extraction unit which extracts an amount of interference based upon the received signal obtained on the basis of a beam;

        a plurality of normalizing units which normalize the

25   signals that have been subjected to the phase variation

removing process based upon the amount of interference;

a combining unit which combines all the signals that have been normalized; and

a determining unit which determines the signal after

5 the combining by the combining unit.

2.   The spectrum spread receiver according to claim 1, wherein the interference amount extraction unit calculates the amount of interference based upon a known sequence added

10 to the transmission signal.

3.   The spectrum spread receiver according to claim 1, wherein the path detection unit comprises:

a plurality of beam generating units which generate

15 a plurality of beams required for covering areas that are the service areas;

a path detection unit which detects all the paths having power values not less than a predetermined threshold value on the basis of a beam, and for normalizing the power value

20 that has been detected based upon the interference power calculated for each of the beams; and

a path selection unit which selects a predetermined number of paths among the paths that have been detected in a descending order from the biggest power value.

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4.   The spectrum spread receiver according to claim 3, wherein, with respect to the initial value of the weight required for forming a beam using the adaptive algorithm, each of said beam forming unit uses the weight obtained at

5   the time of beam formation by the plurality of beam generating units.

5.   The spectrum spread receiver according to claim 1, wherein the adaptive algorithm is allowed to calculate an

10   error signal by subtracting the received signal from the reference signal generated from the results of the determination, and also to generate a new error signal by carrying out an integral process by using a weighting coefficient on the error signal.

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